AUTODOC CLUB

How to change rear coil springs on **BMW E39** – replacement guide

VIDEO TUTORIAL



Important!

This replacement procedure can be used for:
BMW 5 Saloon (E39) 525tds 2.5, BMW 5 Saloon (E39) 523i 2.5, BMW 5 Saloon (E39) 528i 2.8, BMW 5 Saloon (E39) 540i 4.4, BMW 5 Saloon (E39) 535i 3.5, BMW 5 Saloon (E39) 525td 2.5, BMW 5 Saloon (E39) 530d 3.0, BMW 5 Saloon (E39) M5, BMW 5 Saloon (E39) 520i 2.0, BMW 5 Saloon (E39) 520d 2.0, BMW 5 Saloon (E39) 525d 2.5, BMW 5 Saloon (E39) 520i 2.2, BMW 5 Saloon (E39) 530i 3.0

The steps may slightly vary depending on the car design.

REPLACEMENT: COIL SPRINGS – BMW E39. LIST OF THE TOOLS YOU'LL NEED:



- Wire brush
- WD-40 spray
- Brake cleaner
- Copper grease
- Combination spanner #16
- Combination spanner #22
- Drive socket # 10
- Drive socket # 13
- Drive socket # 16
- Drive socket # 21
- Drive socket # 22
- Wheel impact socket #17
- Ratchet wrench
- Torque wrench
- Shock absorber socket #DD6
- Tap wrench
- Crow bar
- Plastic trim tool
- Phillips screwdriver
- Hydraulic strut spring compressor
- Hydraulic transmission jack
- Wheel chock

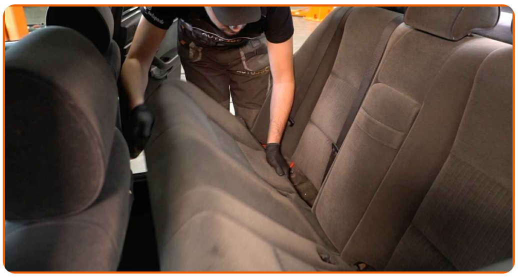
BUY TOOLS

Replacement: coil springs – BMW E39. Tip:

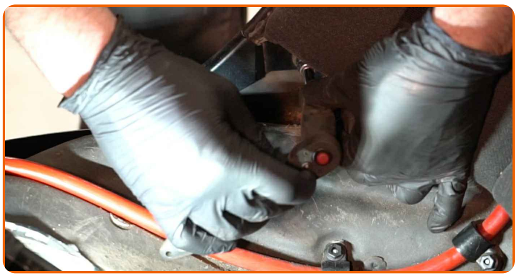
- Both coil springs of the rear suspension should be replaced simultaneously.
- The replacement procedure is identical for the left and right coil springs of the rear suspension.
- Warning! Shut down the engine before starting any work – BMW E39.

CARRY OUT REPLACEMENT IN THE FOLLOWING ORDER:

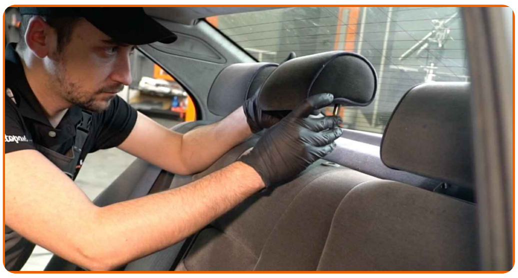
1 Remove the lower part of the rear seat.



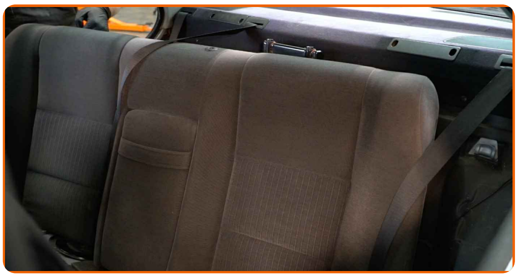
2 Unscrew the fasteners of the rear seat backrest. Use a drive socket #10. Use a ratchet wrench.



3 Remove the rear seat headrests.



4 Remove the rear seat backrest.



5 Remove the side plastic cover. Use a plastic trim tool.



6 Unscrew the rear seat headrest bracket. Use a Phillips screwdriver.



7 Remove the clips from the parcel shelf.



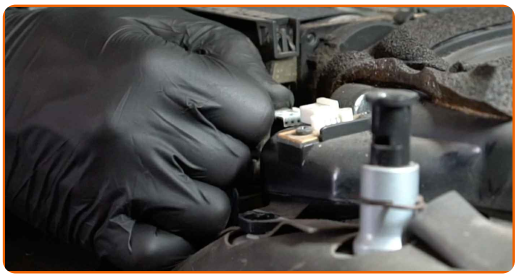
8 Detach the parcel shelf.



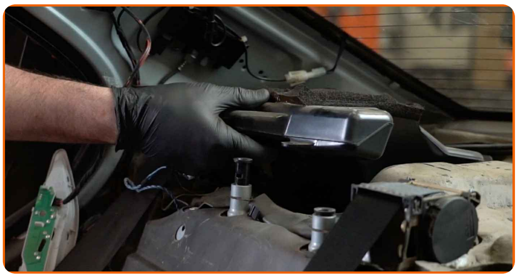
9 Unscrew the fasteners of the speakers. Use a Phillips screwdriver.



10 Detach the speaker connector.



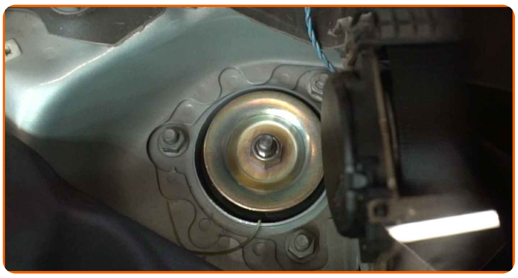
11 Remove the speakers.



12 Bend the interior sound insulation upwards.



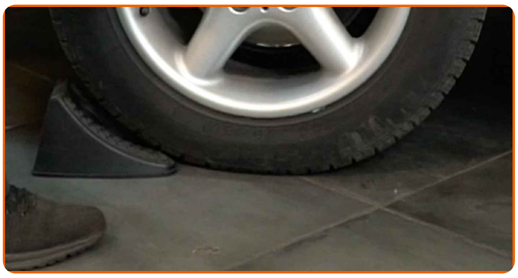
13 Remove the shock strut mount cap.



14 Loosen the upper fastener of the shock strut mount. Use a drive socket #13. Use a ratchet wrench.



15 Secure the wheels with chocks.



16 Loosen the wheel mounting bolts. Use wheel impact socket #17.



17 Raise the rear of the car and secure on supports.



18 Unscrew the wheel bolts.



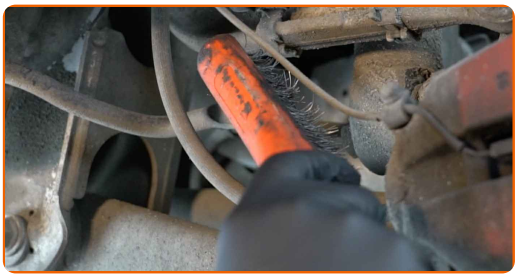
Replacement: coil springs – BMW E39. AUTODOC recommends:

- To avoid injury, hold up the wheel when unscrewing the bolts.

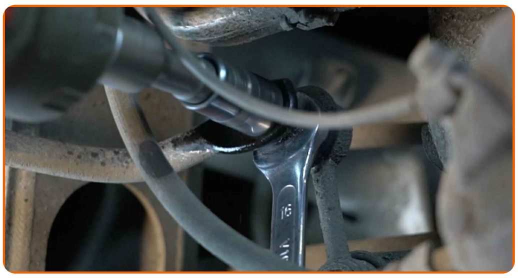
19 Remove the wheel.



20 Clean the stabiliser link fasteners. Use a wire brush. Use WD-40 spray.



21 Unscrew the fastener connecting the stabilizer link to the stabilizer bar. Use a combination spanner #16. Use a drive socket #16. Use a ratchet wrench.



22 Remove the stabilizer rod.



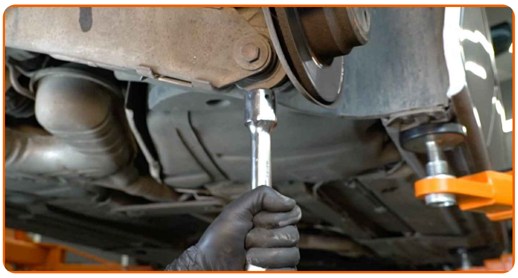
23 Disconnect the brake pads wear sensor. Use a crowbar.



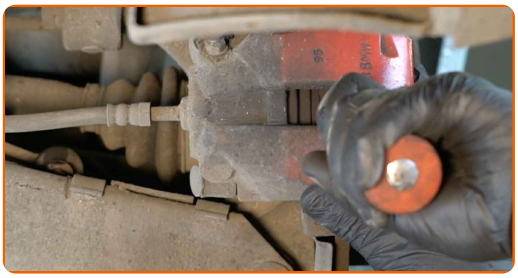
Please note!

- Some cars are not equipped with the brake pad wear sensor.

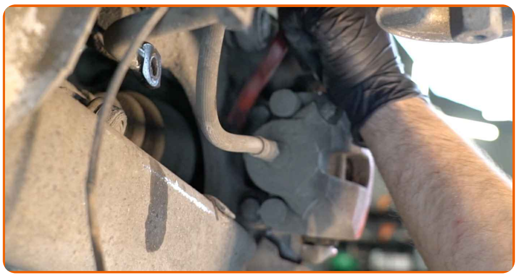
24 Support the arm. Use a hydraulic transmission jack.



25 Spread the brake pads. Use a crowbar.



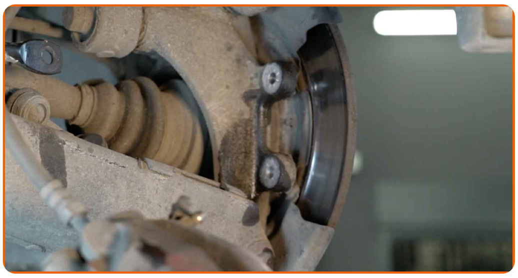
26 Clean the brake caliper bracket fasteners. Use a wire brush. Use WD-40 spray.



27 Unscrew the caliper bracket fastening. Use a drive socket #16. Use a tap wrench.



28 Remove the brake caliper together with its bracket.



AUTODOC recommends:

- Tie the caliper to the suspension or to the body with a wire without disconnecting from the brake hose to prevent depressurization of the brake system.
- Make sure that the brake caliper is not hanging on the brake hose.
- Don't press the brake pedal after the brake caliper has been removed. As a result, the piston can fall out from the brake cylinder, and brake fluid leakage and depressurization of the system may occur.

29 Remove the support from under the arm.



AUTODOC recommends:

- Replacement: coil springs – BMW E39. Lower the transmission jack smoothly, without jerks, to avoid damaging components and mechanisms.

30 Clean the shock strut fasteners. Use a wire brush. Use WD-40 spray.



31 Unscrew the lower fastener of the shock absorber strut. Use a drive socket #21. Use a tap wrench.



32 Clean all joints of the arm. Use a wire brush. Use WD-40 spray.



33 Disconnect the ABS sensor wiring.



34 Clean all joints of the arm. Use a wire brush. Use WD-40 spray.



35 Unscrew the fastener connecting the control arm to the rear knuckle. Use a combination spanner #22. Use a drive socket #10. Use a ratchet wrench.



36 Unscrew the arm fastening to the beam. Use a combination spanner #16.



37 Detach the bottom part of the shock strut. Use a crowbar.



38 Remove the fastening bolt.



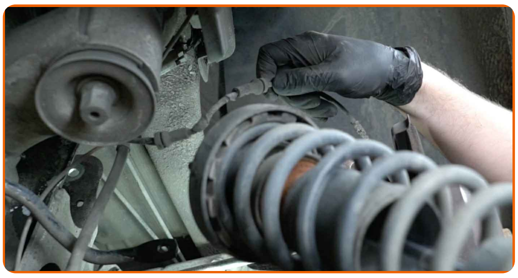
39 Remove the arm.



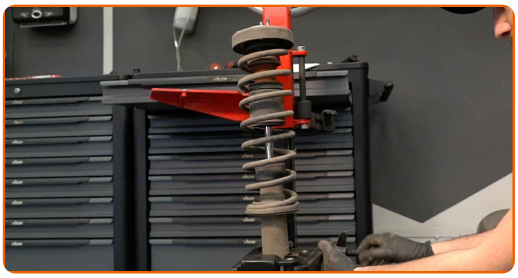
40 Unscrew the top fastening of the shock strut mount.



41 Remove the suspension strut.



42 Set the shock absorber strut on the spring compressor tool.



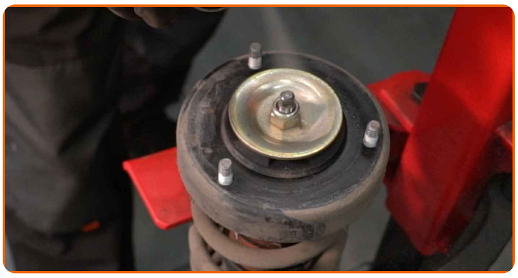
Replacement: coil springs – BMW E39. AUTODOC experts recommend:

- Note that when using a spring compressor, spring coils need to be securely gripped, compressing the spring on the opposite sides.
- Ensure the correct position of the spring in the retainer.
- Make sure that the spring coils tightly entered the lock handles.

43 Compress the spring.



44 Treat the shock strut rod. Use a wire brush. Use WD-40 spray.



45 Remove the strut piston rod nut. Use a shock absorber socket DDN№6. Use a drive socket #16. Use a ratchet wrench.



46 Remove the top strut mount.



47 Release the coil spring.



48 Remove the spring.



49 Remove the shock absorber dust cap and the bump stop.



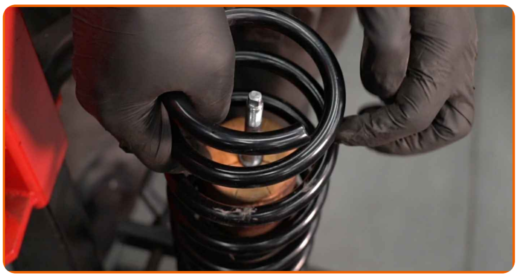
AUTODOC recommends:

- Replacement: coil springs – BMW E39. Carefully inspect the mount, the boot, and the bump stop of the shock absorber. Replace if necessary.

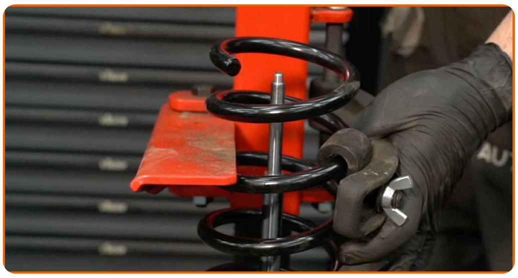
50 Install the spring on the shock absorber.



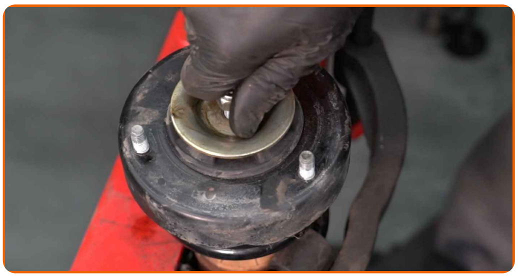
51 Install the boot and a bump stop onto the shock absorber.



52 Compress the spring.



53 Install the upper strut mount and the strut mount bearing.



54 Tighten the shock strut piston rod nut. Use a shock absorber socket DDN№6. Use a drive socket #16. Use a torque wrench. Tighten it to 27 Nm torque.



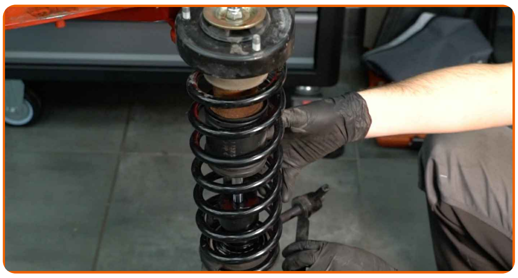
AUTODOC recommends:

- Check to make sure the spring is positioned correctly. Avoid its misalignment.

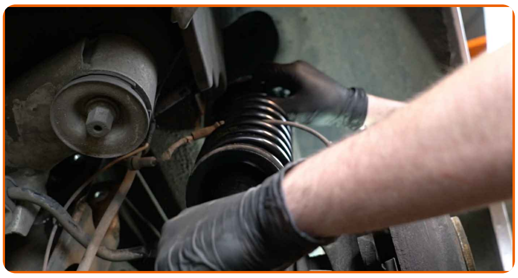
55 Decompress the spring.



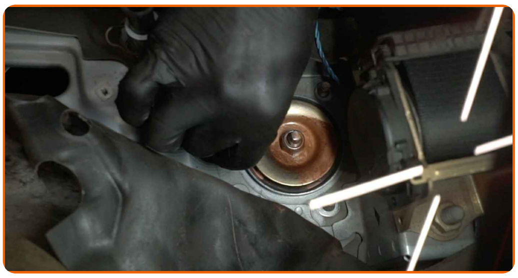
56 Remove the assembled shock strut.



57 Install the shock strut into the wheel arch.



58 Screw the top fastening of the shock strut mount. Do not tighten it.



AUTODOC recommends:

- Important! Hold the suspension strut while screwing in the fastening bolts. BMW E39

59 Clean the mounting seats of the shock strut. Use a wire brush. Use WD-40 spray.



60 Attach the bottom part of the shock strut.



61 Tighten the lower fastening of the shock absorber. Use a drive socket #21. Use a torque wrench. Tighten it to 127 Nm torque.



62 Clean the mounting seats and the thread of the suspension arm. Use a wire brush. Use WD-40 spray.



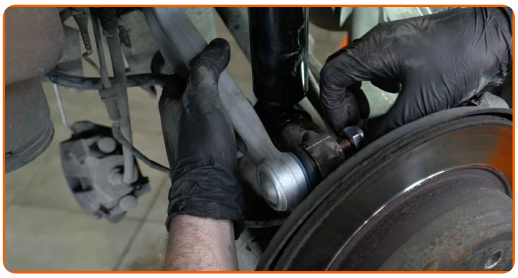
63 Reinstall the control arm.



Replacement: coil springs – BMW E39. Tip:

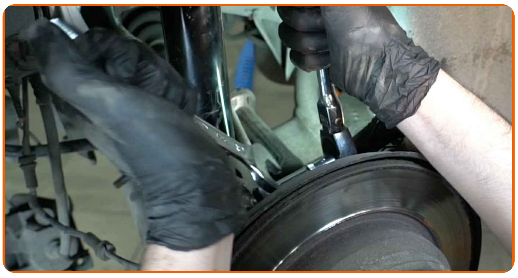
- Do not damage the ball joint cover.

64 Install the fastening bolt.



65

Screw in the fastener that connects the control arm to the rear knuckle. Use a combination spanner #22. Use a drive socket #10. Use a ratchet wrench.



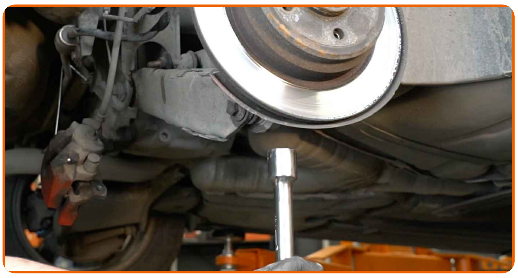
66

Tighten the fastener connecting the suspension arm to the rear knuckle. Use a drive socket #22. Use a torque wrench. Tighten it to 142 Nm torque.



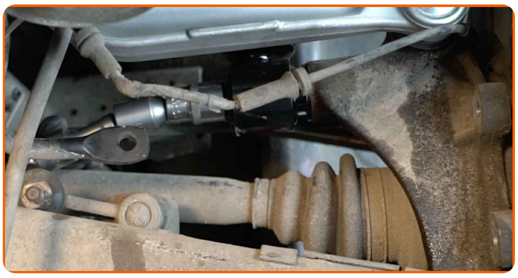
67

Support the arm. Use a hydraulic transmission jack.



68

Screw in the fastener connecting the control arm to the subframe. Use a combination spanner #16.



69 Tighten the arm fastening to the beam. Use a drive socket #16. Use a torque wrench. Tighten it to 110 nm torque.



70 Connect the ABS sensor wiring.



71 Install the brake caliper together with its bracket.



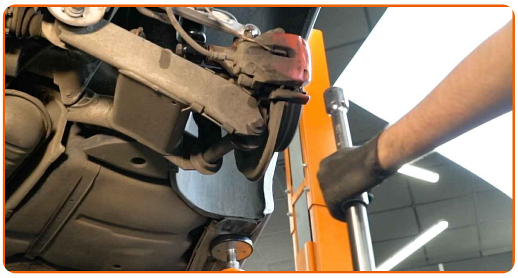
72 Tighten the brake caliper bracket. Use a drive socket #16. Use a torque wrench. Tighten it to 65 Nm torque.



73 Connect the brake pads wear sensor.



74 Remove the support from under the arm.



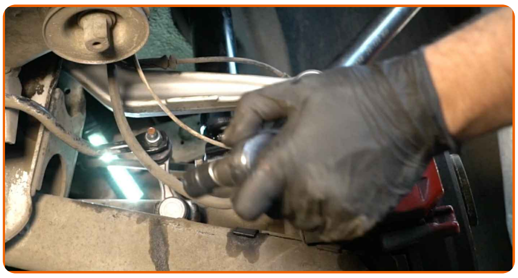
AUTODOC recommends:

- BMW E39 – Do not lower the transmission jack sharply to avoid damaging components and mechanisms of the car.

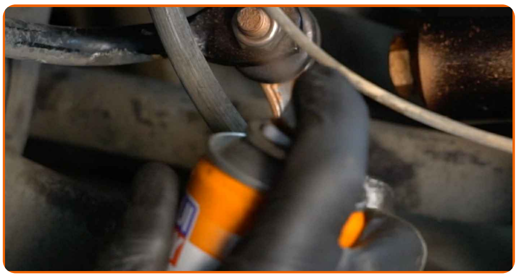
75 Install the transverse stabilizer link.



76 Tighten the fastener connecting the stabilizer link to the stabilizer bar. Use a combination spanner #16. Use a drive socket #16. Use a torque wrench. Tighten it to 60 Nm torque.



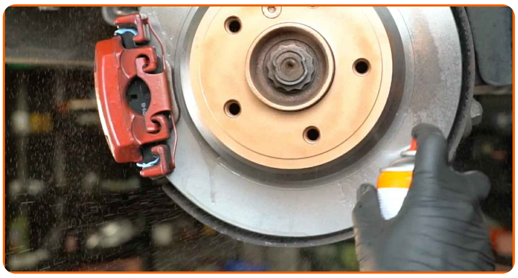
77 Treat all joints of the arm. Treat the shock strut fasteners. Use copper grease.



78 Treat the surface where the brake disc contacts the wheel rim. Use copper grease.



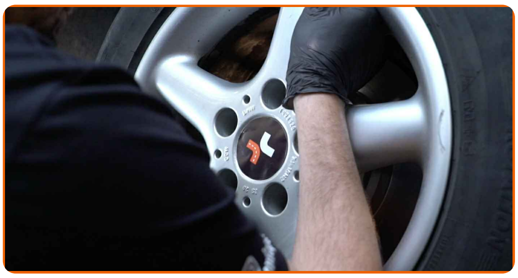
79 Clean the brake disk surface. Use a brake cleaner.



Replacement: coil springs – BMW E39. Tip from AUTODOC:

- After applying the spray, wait a few minutes.

80 Install the wheel.



AUTODOC recommends:

- Important! Hold the wheel while screwing in the fastening bolts. BMW E39

81 Screw in the wheel bolts. Use wheel impact socket #17.



82 Lower the car and working in a cross order, tighten the wheel bolts. Use wheel impact socket #17. Use a torque wrench. Tighten it to 120 Nm torque.



83 Remove the jacks and chocks.



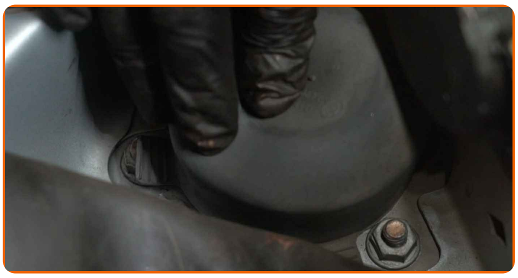
84 Tighten the upper fastener of the shock absorber strut mount. Use a drive socket #13. Use a torque wrench. Tighten it to 24 Nm torque.



85 Treat the fasteners of the shock strut mount. Use copper grease.



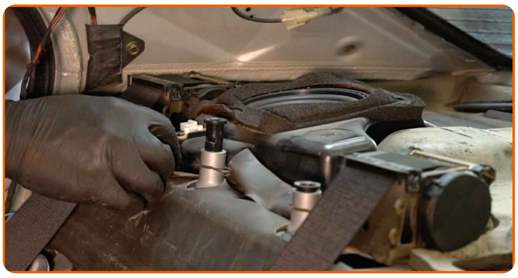
86 Install the shock strut mount cap.



87 Reinstall the interior sound insulation.



88 Reinstall the speakers.



89 Screw in the fasteners of the speakers. Use a Phillips screwdriver.



90 Attach the speaker connector.



91 Reinstall the parcel shelf.



92 Reinsert the parcel shelf clips.



93 Screw in the rear seat headrest bracket. Use a Phillips screwdriver.



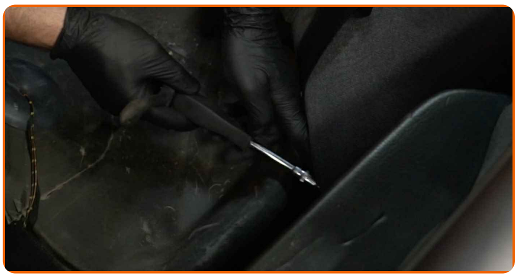
94 Install the side plastic panel. Use a plastic trim tool.



95 Reinstall the rear seat backrest.



96 Screw in the fasteners of the rear seat backrest. Use a drive socket #10. Use a ratchet wrench.



97 Reinstall the rear seat headrests.



98 Reinstall the lower part of the rear seat.



Replacement: coil springs – BMW E39. AUTODOC recommends:

- Without starting the engine, press the brake pedal several times until you feel significant resistance.

WELL DONE!

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